

# t28\_topdim\_1 (TMLKSuDEtCFKAgkE- cyJ1uK4BzVxAQSLYbD4)

October 27, 2020

Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v3\_topdim\_1 : \iota \Rightarrow o$  be given. Let  $k2\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_topdim\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $r1\_t\_0topsp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_borsuk\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ X1))) \Rightarrow (r1\_t\_0topsp (k2\_borsuk\_1 X0 X1) (k2\_borsuk\_1 X1 X0))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((l1\_pre\_topc X0) \wedge (l1\_pre\_topc X1)) \Rightarrow ( \\ (r1\_borsuk\_3 X0 X1) \Leftrightarrow (r1\_t\_0topsp X0 X1)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1)) \Rightarrow ((r1\_borsuk\_3 X0 X1) \Rightarrow (( \\ (v3\_topdim\_1 X0) \Rightarrow (v3\_topdim\_1 X1)) \wedge (((v3\_topdim\_1 X1) \Rightarrow (v3\_topdim\_1 \\ X0)) \wedge ((v3\_topdim\_1 X0) \Rightarrow (k4\_topdim\_1 X1 = k4\_topdim\_1 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ X0))) \Rightarrow (\forall X1. ((v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ X1))) \Rightarrow (r1\_borsuk\_3 X0 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \wedge \\ ((v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1)))) \Rightarrow (( \\ v2\_struct\_0 (k2\_borsuk\_1 X1 X0) \wedge ((v1\_pre\_topc (k2\_borsuk\_1 \\ X1 X0)) \wedge (v2\_pre\_topc (k2\_borsuk\_1 X1 X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \wedge \\ & ((v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1)))) \Rightarrow (( \\ & v2\_struct\_0 (k2\_borsuk\_1 X0 X1)) \wedge ((v1\_pre\_topc (k2\_borsuk\_1 \\ & X0 X1)) \wedge (v2\_pre\_topc (k2\_borsuk\_1 X0 X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \wedge \\ & ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1))) \Rightarrow ((v1\_pre\_topc (k2\_borsuk\_1 \\ & X0 X1)) \wedge ((v2\_pre\_topc (k2\_borsuk\_1 X0 X1)) \wedge (l1\_pre\_topc (k2\_borsuk\_1 \\ & X0 X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_pre\_topc X0) \Rightarrow (((v2\_struct\_0 X0) \wedge (v2\_pre\_topc \\ & X0)) \Rightarrow ((v2\_pre\_topc X0) \wedge (v3\_topdim\_1 X0))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ & ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1)) \Rightarrow ((v3\_topdim\_1 (k2\_borsuk\_1 \\ & X0 X1)) \Rightarrow ((v3\_topdim\_1 (k2\_borsuk\_1 X1 X0)) \wedge (k4\_topdim\_1 (k2\_borsuk\_1 \\ & X0 X1) = k4\_topdim\_1 (k2\_borsuk\_1 X1 X0)))))) \end{aligned}$$