

## t2\_topreal5

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Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_topmetr : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_connsp\_1 : \iota \Rightarrow o$  be given. Let  $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $k3\_topmetr : \iota$  be given. Assume the following.

$$\forall X0.((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow ((v2\_connsp\_1 (k2\_struct\_0 X0) X0) \Leftrightarrow (v1\_connsp\_1 X0)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow (v1\_connsp\_1 (k4\_topmetr X0 X1)))) \quad (2)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m1\_pre\_topc X1 X0) \Rightarrow (l1\_pre\_topc X1)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \Rightarrow ((\neg v2\_struct\_0 (k4\_topmetr X0 X1)) \wedge ((v1\_pre\_topc (k4\_topmetr X0 X1)) \wedge (m1\_pre\_topc (k4\_topmetr X0 X1) k3\_topmetr))) \quad (4)$$

Assume the following.

$$(v2\_pre\_topc k3\_topmetr) \wedge (l1\_pre\_topc k3\_topmetr) \quad (5)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1.(m1\_pre\_topc X1 X0) \Rightarrow (v2\_pre\_topc X1)) \quad (6)$$

### Theorem 1

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow (v2\_connsp\_1 (k2\_struct\_0 (k4\_topmetr X0 X1)) (k4\_topmetr X0 X1))))$$