

## t55\_rewrite1

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_rewrite1 : \iota \Rightarrow o$  be given. Let  $v4\_rewrite1 : \iota \Rightarrow o$  be given. Let  $r2\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r4\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_rewrite1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v2\_rewrite1 X0) \wedge (v4\_rewrite1 X0))) \Rightarrow (\forall X1. r4\_rewrite1 X0 X1 (k2\_rewrite1 X0 X1)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1. \forall X2. \forall X3. ((r2\_rewrite1 X0 X1 X2) \wedge (r2\_rewrite1 X0 X2 X3)) \Rightarrow (r2\_rewrite1 X0 X1 X3)) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1. \forall X2. (r1\_rewrite1 X0 X1 X2) \Rightarrow ((r2\_rewrite1 X0 X1 X2) \wedge (r2\_rewrite1 X0 X2 X1))) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1. \forall X2. (r4\_rewrite1 X0 X1 X2) \Leftrightarrow ((r3\_rewrite1 X0 X2) \wedge (r1\_rewrite1 X0 X1 X2))) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v4\_rewrite1 X0) \Leftrightarrow (\forall X1. \forall X2. ((r3\_rewrite1 X0 X1) \wedge ((r3\_rewrite1 X0 X2) \wedge (r2\_rewrite1 X0 X1 X2))) \Rightarrow (X1 = X2))) \quad (5)$$

**Theorem 1**

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v2\_rewrite1 X0) \wedge (v4\_rewrite1 X0))) \Rightarrow (\forall X1. \forall X2. (r2\_rewrite1 X0 X1 X2) \Rightarrow (k2\_rewrite1 X0 X1 = k2\_rewrite1 X0 X2))$$