

Inference at * 1
of proof for Lemma linorder_lt_neg:

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1. T : Type
2. R : T → T →  $\mathbb{P}$ 
3.  $\forall x, y:T. \text{Dec}(R(x,y))$ 
4.  $\forall a:T. R(a,a)$ 
5.  $\forall a, b, c:T. R(a,b) \Rightarrow R(b,c) \Rightarrow R(a,c)$ 
6.  $\forall x, y:T. R(x,y) \Rightarrow R(y,x) \Rightarrow (x = y)$ 
7.  $\forall x, y:T. R(x,y) \vee R(y,x)$ 
8. a : T
9. b : T
 $\vdash (\neg(R(a,b) \ \& \ (\neg R(b,a)))) \iff R(b,a)$ 
  by ((Unfold 'decidable' 3 THEN InstHyp [b;a] 3
THENM InstHyp [a;b] 7
THENM ProveProp)

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CollapseTHEN ((Auto_aux (first_nat 1:n) ((first_nat 1:n),(first_nat 3:n)) (first_tok
:t) inil_term)))·

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