

Inference at \*  
of proof for Lemma length\_of\_not\_nil:

$\vdash \forall A:\text{Type}, as:(A \text{ List}). (\neg(as = [])) \iff (\|as\| \geq 1)$   
by ((((((RepD  
CollapseTHENM (OnVar 'as' D)).)  
CollapseTHENM (Reduce 0)).)

CollapseTHEN ((Auto\_aux (first\_nat 1:n) ((first\_nat 2:n),(first\_nat 3:n)) (first\_tok :t  
) inil\_term))).

1:

1.  $A : \text{Type}$
  2.  $\neg([] = [])$
- $\vdash 0 \geq 1$

2:

1.  $A : \text{Type}$
  2.  $u : A$
  3.  $v : A \text{ List}$
  4.  $\neg([u / v] = [])$
- $\vdash (\|v\|+1) \geq 1$

3:

1.  $A : \text{Type}$
  2.  $u : A$
  3.  $v : A \text{ List}$
  4.  $(\|v\|+1) \geq 1$
- $\vdash \neg([u / v] = [])$

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