

Inference at \*  
of proof for Lemma exists\_over\_and\_r:

$\vdash \forall T:\text{Type}, A:\mathbb{P}, B:(T \rightarrow \mathbb{P}). (\exists x:T. (A \wedge B(x))) \iff (A \wedge (\exists x:T. B(x)))$   
by ((GenExRepD)  
CollapseTHEN ((Auto\_aux (first\_nat 1:n) ((first\_nat 1:n),(first\_nat  
3:n)) (first\_tok :t) inil\_term))).

1:

1.  $T : \text{Type}$
  2.  $A : \mathbb{P}$
  3.  $B : T \rightarrow \mathbb{P}$
  4.  $x : T$
  5.  $A$
  6.  $B(x)$
- $\vdash \exists x:T. B(x)$

2:

1.  $T : \text{Type}$
  2.  $A : \mathbb{P}$
  3.  $B : T \rightarrow \mathbb{P}$
  4.  $A$
  5.  $x : T$
  6.  $B(x)$
- $\vdash \exists x:T. (A \wedge B(x))$
- .