

Inference at \* 1 2 1 2  
of proof for Lemma adjacent-append:

1.  $T : \text{Type}$
2.  $x : T$
3.  $y : T$
4.  $L_1 : T \text{ List}$
5.  $L_2 : T \text{ List}$
6.  $i : \{0..(\|L_1 @ L_2\| - 1)^-\}$
7.  $x = (L_1 @ L_2)[i]$
8.  $y = (L_1 @ L_2)[(i+1)]$
9.  $\neg(i < \|L_1\|)$

$\vdash y = L_2[((i - \|L_1\|)+1)]$   
by ((RWO "length-append" (-4))  
CollapseTHENA (Auto.)).

1:

6.  $i : \{0..(\|L_1\| + \|L_2\| - 1)^-\}$
7.  $x = (L_1 @ L_2)[i]$
8.  $y = (L_1 @ L_2)[(i+1)]$
9.  $\neg(i < \|L_1\|)$

$\vdash y = L_2[((i - \|L_1\|)+1)]$