

Inference at \* 1 2  
of proof for Lemma p-fun-exp-add1-sq:

...upcase.... NILNIL

1.  $A : \text{Type}$
2.  $f : A \rightarrow (A + \text{Top})$
3.  $x : A$
4.  $\uparrow \text{isl}(f(x))$
5.  $n : \mathbb{Z}$
6.  $0 < n$
7.  $(\text{primrec}(n - 1; f \circ \text{p-id}() ; \lambda i, g. f \circ g)(x))$   
 $\sim$   
 $(\text{primrec}(n - 1; \text{p-id}(); \lambda i, g. f \circ g)(\text{outl}(f(x))))$   
 $\vdash (\text{primrec}(n; f \circ \text{p-id}() ; \lambda i, g. f \circ g)(x))$   
 $\sim$   
 $(\text{primrec}(n; \text{p-id}(); \lambda i, g. f \circ g)(\text{outl}(f(x))))$   
by (RecUnfold 'primrec' 0)  
CollapseTHEN (((if (0  
) =0 then SplitOnConclITE else SplitOnHypITE (0)).)  
CollapseTHENA (Auto·).)

1: ...truecase.... NILNIL

8.  $n = 0$   
 $\vdash (f \circ \text{p-id}() (x)) \sim (\text{p-id}() (\text{outl}(f(x))))$

2: ...falsecase.... NILNIL

8.  $\neg(n = 0)$   
 $\vdash ((\lambda i, g. f \circ g)((n - 1), \text{primrec}(n - 1; f \circ \text{p-id}() ; \lambda i, g. f \circ g), x))$   
 $\sim$   
 $((\lambda i, g. f \circ g)((n - 1), \text{primrec}(n - 1; \text{p-id}(); \lambda i, g. f \circ g), \text{outl}(f(x))))$