Inference at $*$ 1
of proof for Lemma list_extensionality:

1. T : Type
2. a : T List
3. b : T List
4. $\|a\| = \|b\|$
5. $\forall i{:}\mathbb{N}.\ (i < \|a\|) \Rightarrow (a[i] = b[i])$

$\vdash a = b$

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  by ((((((((((MoveToConcl 3)
  CollapseTHEN (ListInd 2))·)
  CollapseTHEN (RAA (D 0)))·)

  CollapseTHEN (ListInd (-1)))·)
  CollapseTHEN (Reduce 0))·)
  CollapseTHEN (
    (Auto_aux (first_nat 1:n) ((first_nat 2:n),(first_nat 3:n)) (first_tok SupInf:t
    ) inil_term)))·

    1:
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3. u : T
4. v : T List
5. $\forall b{:}(T\ \text{List}).\ (\|v\| = \|b\|) \Rightarrow (\forall i{:}\mathbb{N}.\ (i < \|v\|) \Rightarrow (v[i] = b[i])) \Rightarrow (v = b)$
6. T List
7. u_1 : T
8. v_1 : T List
9. $(\|[u\ /\ v]\| = \|v_1\|)$
   $\Rightarrow (\forall i{:}\mathbb{N}.\ (i < \|[u\ /\ v]\|) \Rightarrow ([u\ /\ v][i] = v_1[i]))$
   $\Rightarrow ([u\ /\ v] = v_1)$
10. $\|v\|+1 = \|v_1\|+1$
11. $\forall i{:}\mathbb{N}.\ (i < (\|v\|+1)) \Rightarrow ([u\ /\ v][i] = [u_1\ /\ v_1][i])$

$\vdash [u\ /\ v] = [u_1\ /\ v_1]$

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http://www.nuprl.org/FDLcontent/p0_963683_/p122_97646_{list_extensionality}1.html